DOCUMENT RESUME

ED 030 580 SP 001 780

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Pub Date [66]
Note-14p.
EDRS Price MF-$0.25 HC-$0.80
Descriptors-*Changing Attitudes, *Education Majors, Research Needs, *Teacher Interns

Three successive groups of education students enrolled in a fifth year M.Ed. program were tested in a longitudinal study for differences between their attitudes after completing the academic portion of the program (first semester) and after completing internship (second semester), which involved full teaching responsibility along with biweekly supervision by the college and a weekly seminar. The Minnesota Teacher Attitude Inventory (MTAI) was administered in September, January (when roles changed from student to intern), and May. Analysis of MTAI scores for 52 subjects revealed a significant gain in scores (i.e., in tolerance and child-centeredness) after completion of the academic program and a significant decrease in scores after internship. Tentative support was found for the hypothesis that there is more variability in the direction and amount of change during internship than during the academic program. When MTAI scores were correlated with intern ratings made by the program director of the amount of difficulty and frustration each intern experienced, the latter were found to be significantly associated with a decrease in MTAI scores. Any hypothesized relationship between internship in an inner-city school and a decrease in score approached significance. Variables and hypotheses suggested by this investigation need to be explored. (A summary of the preceding four-year pilot study is included.) (LP)

ED030580

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The Differential Effects of Studying versus Teaching on Teachers' Attitudes.

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SP001780

The purpose of the study was to investiage the differential effects as measured by the Minnesota Teacher Attitude Inventory (MTAI) between students enrolled in a sequence of education courses and beginning teachers. Since the results of this study were obtained from subjects enrolled in an experimental program in teacher education and since the nature and sequence of the program is directly related to the design of the study, a brief description of the program itself appears necessary.

All subjects in this study attended an experimental fifth year program in elementary education leading to an M.Ed. degree. Eligible for the program are liberal arts graduates of accredited colleges who have not yet had any teaching experience nor few, if any, education courses. The program is a one year program, beginning with a four week pre-session in early September. The pre-session is followed by a full semester of academic work in professional education courses. Students have no choice in course selection since the program is a "package," providing all the professional education courses needed for certification in most states. During the second semester (February to the closing of the public schools in late June) the students become interns in either an urban or suburban public school system near the college. The interns assume the full responsibilities of a regular classroom teacher and are on the staff and the payroll of the school system. The internship itself does not earn academic credit, but has to be completed satisfactorily in order to receive the M.Ed. degree. The college does provide bi-weekly supervision during the 4½ months internship and the students attend a weekly seminar on campus.

During the seven year period reported in this paper, the number of students who received their M.Ed. degree in each year ranged from 11 to 23,

with a mean of 15. Only those students for whom all test scores are available are included in this report, a total of 106 subjects. All but one are females.

During a four year period, as a pilot study, the MTAI was administered to all the students in the fifth year program at the beginning of the program in September and again toward the latter part of the internship in May. The total number of students for whom both test scores are available is 54. The analysis of

Table I

ANALYSIS OF VARIANCE OF MTAI SCORES OF TWO TEST ADMINISTRATIONS.

September - May

Source of Variance	df	Sum of Squares	Mean Squares	F	p
Treatment	1	884	884	2.72	n.s.
Subjects	53	67.729	1.278		
Residual	53	17.178	324		
Total		85.791			

variance treatment by subject design (Lindquist, 1953) yields an F ratio of 2.72 (1/53 df) which is statistically not significant. The actual MTAI mean is 5.7 points lower in May than it was in September. Inspection of the change in individual classes reveals that for two of the four classes there is a loss in MTAI scores, while for the other two classes there is a small gain. The correlation between the two administrations with a 9-month time interval is .61 (N 54), which is significant and in agreement

with data reported by Day (1959), who found a test retest correlation of .63 (N 70) over a one year time interval. However, the main concern in this study is the change in students' attitudes. The pattern that emerges in the pilot study is not consistent, is inconclusive and the differences are not statistically significant and is in contrast to previous findings reported in the literature. It has been shown that MTAI scores increase as a result of an educational psychology course (Brim, 1966), a course in mental hygiene (Stein & Hardy, 1957), or general enrollment in an education sequence (Callis, 1950), and as a result of student teaching (Brim, 1966, and Sandgren & Schmidt, 1956). However, Callis (1950) suggested as a result of his findings, "that by the time a teacher has taught six months his attitudes toward pupils as measured by the Teacher Attitude Inventory are about the same as when he began professional training .... "(p. 75). In interpreting the data reported above, one ought also consider that the MTAI manual (Cook, Leeds & Callis, 1951) gives lower norms for experienced elementary school teachers with a college degree than for graduating seniors in elementary education. In our data, apparently the effect of the academic program which would bring about a positive change in attitude has been washed out by the actual teaching experience in the internship, so that the subjects attitudes are, indeed, just about the same as they were when they began their professional training.

Several hypotheses suggest themselves from the pilot study and related knowledge accumulated in the literature:

1. The attitudes of the education students in the program will increase--or become more child centered--during the academic part of the program.

2. During the internship, when these students actually become beginning teachers, their MTAI scores will decrease.
3. The change in attitude during the internship will vary greatly from individual to individual,--both in the amount and in the direction of change.
4. The decrease in MTAI scores will be greater for those students who encounter more than average difficulty and frustration in their first actual teaching assignment as compared to those who experience average or less than average difficulty and frustration.
5. The decrease in MTAI scores will be greater for students who are placed in inner city type schools and schools in lower socio-economic neighborhoods as compared to schools located in middle class neighborhoods.

The nature of the program allowed to test these hypotheses longitudinally, since the same students went through the sequence of academic course work first, which was followed by a teaching assignment, the internship. Callis (1950) makes a distinction between training (such as academic work and student teaching, which tends to be associated with an increase in MTAI scores) and experience (such as actual teaching, which tends to bring about a reduction in MTAI scores). The internship described here has to be considered as experience since the student has full teaching responsibility for her classroom and is paid by the school system according to their regular salary scale.

Procedures

In the following three years the timing of the MTAI administration was changed so that the testing coincided with important changes in the program. Consequently, the differential treatment to which the students are exposed

is defined by the program; namely the effect of the first five months of academic work in professional education courses as contrasted with the effect of the following 4½ months of actual teaching experiences in the internship.

The first test administration occurred within the first two or three days after students arrived on campus. Since the first class meetings dealt with procedures, assignments and introductions there had been virtually no exposure to the program itself. These September scores constitute the pre-testing against which changes are measured. The mean pre-test score (M 37.7; SD 18.3) is almost identical to the mean MTAI score of liberal arts graduates (M 35.6) found by Kearney & Roccia (1956) in their comparisons of MTAI scores in different types of institutions of higher learning.

The second administration of the test in January coincided with the termination of the academic part of the program (except for one evening seminar). At this point the student has earned 26 semester hours of credit in professional education courses. It is at this time that the role of the subjects change; while they have been students up to this point, now they become beginning teachers or interns.

The third MTAI administration took place in early June, close to the termination of the internship and graduation from the M.Ed. program. Therefore, it now becomes possible to assess the differential effects of the program.

The director of the program without any previous knowledge of the MTAI scores of individual students, classified each student on two variables:

1. whether or not the student had experienced more than average frustration and difficulty during the internship. This judgment was based on her recollection of personal reactions of interns

and on the evaluation that had been submitted both by the college supervisor and by the school system.

2. whether or not the intern was placed in an inner city like situation. Included in this rating were schools in lower socio-economic communities.

The two ratings were independent of each other, as indicated by a Chi Square of 1.90 $p < .20$ with Yates Correction for continuity.

Results

There are three classes with a total of 52 subjects for whom all three MTAI scores are available. The analysis of variance treatment by subject design (Lindquist, 1953) was again employed. The F ratio of 16.42 (2/51 df) is significant at the .001 level, justifying independent t-tests between each of the administrations.

Table 2

ANALYSIS OF VARIANCE OF MTAI SCORES OF THREE TEST ADMINISTRATIONS

September - January - June

Source of Variance	df	Sum of Squares	Mean Squares	F	p
Treatment	2	6.304	3.152	16.42	.001
Subjects	51	58.914	1.155		
Residual	102	19.573	193		
Total		84.792			

Hypothesis 1. The actual gain between September and January is 15.52 points. The t ratio between the means of the two test administrations is 7.23

significant at far beyond the .001 level. Since it has been shown by Callis (1950), and Rabinowitz (1954) that retesting students with the same form of the MTAI does not bring about a significant change in test scores, the data strongly support the first hypothesis. Students' attitudes become more tolerant and more child centered--as measured by the MTAI--during the academic part of the program.

Table 3

CHANGES OF MEAN MTAI SCORES DURING THE ACADEMIC PROGRAM AND THE INTERNSHIP (N 52).

	M	SD	M	SD	Difference	t	p
	September		January				
Academic Program	37.96	18.27	53.48	21.57	15.52	7.23	.001
	January		June				
Internship	53.48	21.57	44.77	26.67	-8.87	3.27	.001

Hypothesis 2. During the internship the mean MTAI score drops from 53.48 to 44.62. See table 3. The t ratio between the January and the June administration is 3.27 significant at the .005 level. Since the effect of retesting is negligible and would operate in the opposite direction, the data strongly support the second hypothesis. Beginning teaching experience is associated with a decrease in MTAI scores, which could be interpreted as a tendency to become more traditional and more teacher centered in one's attitude toward teaching. Indirectly both t ratios (table 3) support the statement found in the literature that training increases while experiences decreases MTAI scores.

Hypothesis 3. During the academic part of the program the direction of the change is uniform for most students: 48 Ss increase their score or remain unchanged and only 4 Ss (or 8%) have a lower score in January than in September. The direction of the change during the internship in contrast is quite variable 17 Ss (33%) increase their score, while 35 Ss (67%) show a decrease in scores. Apparently the direction of change is more variable during the internship than during the academic part of the program. In comparing the variability of attitudinal change it is not the MTAI test score that is employed but the gain score. The "academic gain score" is defined as September score subtracted from January score, the SD is 15.03. The "internship gain score" is defined as the January score subtracted from the June score, the SD is 19.34. The t ratio between these two standard deviations is 1.82, significant at the .10 level. The data provide some rather tentative support for the hypothesis that there is more variability in the direction and amount of change during the internship than during the academic part of the program. The statistics do not reach the conventional 5% level of significance and need further investigation.

Hypothesis 4. To investigate the relationship between the change in MTAI scores during the internship, the "internship gain score" (defined above) is correlated by way of the biserial correlation with the judgment of the director of the program as to whether the student had experienced more than average frustration and difficulty. It is reasonable to assume that the degree of frustration and difficulty is continuous rather than dichotomous. The director commented on the fact that for many students the rating was easy and self-evident, since some students had experienced a great deal of frustration and others very little, but that the rating was more difficult

for those who had experiences moderate frustration. 22 out of 57 Ss were rated as having more than average frustration and difficulty. The biserial correlation between "internship gain score" and directors rating is r_b = ₹.32 (N 52) which is just significant at the .05 level. The data support the hypothesis that frustration and difficulty in the internship are associated with a decrease in MTAI scores.

Hypothesis 5. The same statistical procedure was employed in measuring the relationship between the "internship gain score" and whether or not the intern was placed in an inner city type school or a low socio-economic community. 17 out of 52 students were rated in this category. The biserial correlation is r_b = -.26 which approaches significance; however, further investigation is needed to substantiate this relationship.

Discussion of Findings

The highly significant gain in MTAI score during the academic part of the program can best be explained on the basis of student exposure to child development, educational psychology, curriculum, history and philosophy of education. Since all students are exposed to the same ideas it is interesting to observe that the direction of the change is the same for most of the students; only 4 individuals show a loss in MTAI scores during the first part of the program. The actual mean gain of 16.42 points is large. In all probability attitudinal changes that are stimulated in any one course are reinforced in other courses. Consequently, the actual change in attitude may be the result of considerable interaction between various educational courses. In addition there could be the effect of peer group reinforcement which is likely to be greater in a program of this nature, where all students have a common goal, take the same sequence of courses together and in some

instances share extracurricular activities and even live together. There is no empirical evidence of the effect of "peer group reinforcement," but students frequently comment on the strong in-group feeling and the sharing of ideas after class as compared to their undergraduate experience.

In agreement with recent research on the multiple factors of the MTAI by Horn and Morrison (1965), the change observed can be interpreted as a shift toward a more modern approach to classroom control, a more optimistic and favorable opinion of children, a more tolerant and sympathetic attitude toward pupils. The students' attitude toward teaching and toward children becomes more like that of successful classroom teachers. The finding is consistent with previous studies of attitudinal changes as measured by the MTAI cited above and also with studies concerned with attitude change using different methods of assessment in education courses, (Brim 1966), in abnormal psychology (Costin & Kerr, 1962) and in child psychology (Costin, 1958, 1960, 1963).

The decrease in MTAI scores during the internship, on the other hand, is consistent with the lower scores reported for experienced teachers in the MTAI manual as contrasted with graduating seniors. It is also consistent with Callis's statement that teachers during the first half year of teaching lose attitudinal gains obtained during their training. It appears to be in contrast to attitudinal gains reported by Brim (1966) during student teaching; however, it is important to keep in mind that the internship is not student teaching, the intern lacks the continuous presence and the supportive guidance and protection which the student teacher usually has. The intern is solely responsible for her classroom, she is the teacher;

consequently the experience of being a beginning teacher is more likely associated with a decline in MTAI scores.

The initial demands of the school reality, discipline problems, finding oneself in and identifying with the new role of the teacher and the inability to immediately implement high educational ideas and ambitions apparently bring about a disillusionment, loss of idealism, and a return to more traditional attitudes, less tolerance and less sympathy for children and their behavior.

The decline of these attitudes, which educators in general consider as favorable assets, raises some interesting questions which may warrant further research. Is this decline in attitudes going to continue? Such a decline could help us in understanding the cynical and negative comments sometimes overheard in teachers' faculty rooms--teachers who in all probability left college as optimistic and idealistic as our own subjects. Or is the decline simply a result of the encounters of the beginning teacher with all the difficulties of the teaching profession,whichwill reach a low point during the first or second year and from there on increases again? Or would it depend on the meaning that teaching has for the individual? Those individuals who look at teaching as a professional career, who have professional aspirations--and there is some evidence that this is applicable to our graduate students (Muuss, 1962)--and to whom teaching gives a basic meaning to life would show attitudinal growth; while those who are frustrated or who look at it as a money making proposition might decline further in attitude.

From the two variable that were investigated, "frustration" is obviously the more plausible one since frustration that cannot be resolved is most likely to color one's attitude and dampen idealism, tolerance and understanding. In the light of the initial difficulties which the teachers encountered

in the movies "Up the Down Stair Case" and "To Sir with Love" it appeared reasonable to assume that an internship in an inner city school would also bring about disillusionment and a loss of tolerance and sympathy toward children. However, the relationship is not strong enough to be significant. Apparently, it depends on the meaning of the experience in the inner city school. For those who can succeed and accomplish reasonable goals such an experience may increase positive attitude. And there are several individuals in our group who gain in MTAI scores in an inner city school. On the other hand, the three largest declines (-38, -43 and -50 points) were all classified as teaching in the inner city. Maybe we need to be more careful in placing in inner city schools only individuals who have the strength, teaching skill and frustration tolerance to succeed.

The relationship between increase and decrease of MTAI scores during actual teaching experience should be studied beyond the first 4½ months of the beginning teacher. Other variables that have been suggested in this paper warranting further investigation are: degree of success, professional aspirations, the meaning that teaching has in the life of the individual.

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